

REMARKS

Claims 1-8 were pending in the application. Applicants have amended claim 5. Favorable reconsideration and allowance of this application is respectfully requested in light of the amendments and the foregoing remarks.

1. Objections to the Drawings

The Examiner objected to the drawings under 37 CFR 1.83(a) for failing to show elements SA and SB as described on page 8 in the specification. Applicant has amended FIGS. 2- 4 to show the elements SA and SB as described in the application. No new matter is added. Withdrawal of the objection is respectfully requested.

2. Objections to the Specification

The Examiner objected to the Title of the application for not being indicative of the invention which the claims are directed. Applicant has amended the Title to be more indicative of the claimed subject matter of the invention. Withdrawal of the objection is respectfully requested.

3. Allowable Subject Matter

Applicants wish to thank the Examiner for indication of the allowable subject matter of the application. The Examiner objected to claims 5 and 6 as being dependent upon a rejected base claim, but indicated that claims 5 and 6 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant has amended claim 5 to place in proper independent form. Claim 6 depends directly from claim 5,

respectively. Furthermore, claim 6 may contain additional patentable subject matter not discussed herein. Allowance of claims 5 and 6 is respectfully requested.

The Examiner did not indicate the allowance or the rejection of claim 2.

Claim 2 recites:

A method of processing a video image in a video camera having exposure and color balance adjustment means, the method comprising the step of:

adjusting the exposure settings on alternate fields of video, so that one field targets objects in dark areas of the image and an alternate field targets objects in bright areas of the image; and,

adjusting the color balance for each field based on the exposure setting for that field.

None of the cited references teaches or suggest a method of processing a video image includes the steps of adjusting the exposure settings on alternate fields of video, so that one field targets objects in dark areas of the image and an alternate field targets objects in bright areas of the image; and adjusting the color balance for each field based on the exposure setting for that field. Allowance of claim 2 is respectfully requested.

4. Rejections under 35 U.S.C. § 102(e)

Claims 1 and 3-4 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,618,091 to Tamura. Applicant traverses the rejection by the Examiner because the cited reference fails to teach each and every limitation of the claimed invention.

Claim 1 recites:

A method of processing a video image in a video camera having exposure and color balance adjustment means, the method comprising the step of:

adjusting the exposure and color balance settings for one field of video based on the luminance of a preceding field.

Tamura discloses an image pickup apparatus that includes a automatic exposure control means for automatically performing optimum control of the state of exposure of a subject (col. 2, lines 1-15). The automatic exposure control means determines whether the state of exposure is correct, from the signal detected in the exposure data detecting step S1001, and if not correct, the process proceeds to an amount of exposure correction computing step S1003 (col. 2, lines 36-45). The automatic exposure control means selects exposure control parameters from among the iris mechanism 3, the gain of the automatic gain control of the correlation double sample/AGC means 9 and the like, and computes the amount of exposure correction (col. 2, lines 45-53). Tamara et al. further discloses an automatic white balance control means to detect variations in the color of subject from a video signal and determines whether the state of white balance is correct (col. 3, lines 11-20). If the color state white balance is not correct, automatic white balance control means computes a color gain correction value C_n and updates the color gain control value C_o (col. 3, lines 20-32).

Tamara does not teach or suggest adjusting the exposure and color balance settings for one field of video based on the luminance of a preceding field. Rather, Tamara teaches updating a color gain correction based on the detected variation in the color of a subject of a video signal (col. 3, lines 11-20). A review of the remaining cited references fails to teach or suggest this limitation. According, reconsideration and withdrawal of the rejection of claim 1 is respectfully requested.

Claim 3 recites:

A method of processing a video image signal in a color video camera having shutter speed, analog gain and color balance adjustment means, the method comprising the steps of:

- s) deriving a digital luminance signal from said analog video image signal;
- t) analyzing the luminance signal over a first field of video;
- u) determining, based on the analyzed luminance signal, a first set of control signals including a first shutter speed control signal and a first analog gain signal, the first set of control signals causing the luminance of a majority of pixels in a field of video to be below a first limit defining a workable range of luminance;
- v) determining, from the first set of control signals, a first set of color balance settings;
- w) during a second field of video, applying the first shutter speed control signal, the first analog gain signal and the first set of color balance settings to the shutter speed, analog gain and color balance adjustment means, respectively;
- x) analyzing the luminance signal over the second field of video;
- y) determining, based on the analyzed luminance signal, a second set of control signals including a second shutter speed control signal and a second analog gain signal, the second set of control signals causing the luminance of a majority of pixels in a field of video to be above a second limit defining the workable range of luminance;

z) determining, from the second set of control signals, a second set of color balance settings; and, during a next field of video, applying the second shutter speed control signal, the second analog gain signal and the second set of color balance settings to the shutter speed, analog gain and color balance adjustment means, respectively. (emphasis added)

Tamara does not teach or suggest determining a set of color balance settings from a first set of control signals based on the analyzed luminance signal. Rather, Tamara teaches updating a color gain correction based on the detected variation in the color of a subject. A review of the remaining cited references fails to teach or suggest this limitation. Accordingly, reconsideration and withdrawal of the rejection of claim 3 is respectfully requested.

Claim 4 depends directly from claim 3 and is believed allowable for similar reasons that claim 3 is believed allowable. Claim 4 may contain patentable subject matter in addition to claim 3. Tamara et al. does not teach or suggest a method that includes the step of determining, from the luminance level of pixels in one field of video, a color offset for pixels in the next field of video. A review of the remaining cited references fails to teach or suggest this limitation. Allowance of claim 4 is respectfully requested.

5. Rejections under 35 U.S.C. § 103(a)

Applicant respectfully traverses rejection of claim 7 because Claim 7 recites:

Apparatus for processing an analog video signal of a scene, said apparatus comprising:
a color video camera having therein a shutter speed control circuit, an analog gain circuit for adjusting the gain of the analog video

signal, an analog to digital converter for converting a video output signal from said analog gain circuit into a digital signal for each pixel of the image, and luminance and chrominance signal processing circuits responsive to the digital signal for producing a luminance signal and color difference signals for each pixel;

a histogram counter responsive to the luminance signal for counting during one field the number of pixels having a luminance greater than a maximum level and for counting during the next field the number of pixels having a luminance less than a minimum level; and,

a controller for developing a shutter speed control signal, an analog gain control signal and color gain control signals for controlling said shutter speed control circuit, said analog gain circuit and said chrominance signal processing circuits, respectively,

said controller being responsive to the count obtained during said one field to develop a shutter speed control signal and an analog gain signal for bringing luminance of a majority of the pixels below said maximum level during the next field, and responsive to the count obtained during said next field to develop a shutter speed control signal and an analog gain signal for bringing luminance of a majority of the pixels above said minimum level a next succeeding field.

The Examiner admits that Tamura et al. fails to disclose a histogram counter responsive to a luminance signal (Page 4 of Office Action dated April 22, 2004). However, the Examiner mistakenly engages in hindsight reconstruction in alleging use of histogram counter for counting during one field of the number of pixels having a luminance greater than a maximum level and for counting during a next field the number of pixels having a luminance less than a minimum level. (Page 5 of Office Action). Neither Tamara et al. or Lee disclose use of histogram to detect luminance relative to a maximum in one field and a minimum in another field as recited in claim 7. In this regard, none of the cited references teaches or suggests this limitation. As described above, the two sets are used on alternate fields of video so that over two fields a pixel has the correct color information in at least one field. Furthermore, consistent hue values are maintained between

alternate fields, as the color balance settings for the fields are adjusted according to the exposure settings, thus to the luminance level for each field.

Claim 8 depends directly from claim 7 is allowable for similar reasons that claim 7 is believed allowable. Claim 8 contains patentable subject matter in addition to claim 7. None of the cited references teaches or suggest the controller including means for deriving the color gain control signal from the shutter speed control signal and the analog gain control signal. The Examiner mistakenly alleges that Tamara et al. discloses this in Fig. 3 (See page 5 of Office action). Actually, Fig. 3 of Tamara et al. discloses deriving the color gain control signal from color data (See step S1101), not from the shutter speed and analog gain control signal derived from the luminance as recited in base claim 7. Allowance of claim 8 is respectfully requested.

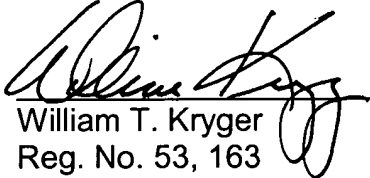
CONCLUSION

It is submitted that claims 1-8 are in compliance with 35 U.S.C. §§ 102 and 103 define patentable subject matter. A Notice of Allowance is therefore respectfully requested.

A one-month extension fee and an additional independent claim fee is included with this communication. Should the Examiner consider any other fees to be payable in conjunction with this or any future communication, authorization is given to direct payment of such fees, or credit any overpayment, to Deposit Account No. 50-1170.

The Examiner is invited to contact the undersigned by telephone if it would help expedite matters.

Respectfully submitted,


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